

Application No.: 09/512,395

Docket No.: 42390.P0744C2

Utility Patent Application

**Listing of Claims:**

1-41. (Canceled)

42. (New) An apparatus, comprising:

a machine-readable storage medium; and

instructions in the machine-readable storage medium, wherein the instructions, when executed by a data processing system, implement an interpreter to perform operations comprising:

receiving a series of source code instructions expressed in a programming language, wherein at least one of the source code instructions comprises a command and an argument;

in response to receiving a source code instruction having a command and an argument, building at least part of a stack-based execution stream; and

after building at least part of the stack-based execution stream, executing the stack-based execution stream;

wherein the operation of building at least part of a stack-based execution stream comprises:

storing the instruction's argument on a stack;

determining an address for an object code routine corresponding to the instruction's command; and

storing the address for said object code routine on the stack.

43. (New) An apparatus according to claim 42, wherein the operation of executing the stack-based execution stream comprises using the address of the object code routine from the stack to call said object code routine.

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44. (New) An apparatus according to claim 42, wherein:

the operation of receiving a series of source code instructions expressed in a programming language comprises repeatedly calling a parser routine from a primary routine for interpretively executing source code instructions; and

the operation of building at least part of a stack-based execution stream comprises:

pushing the instruction's argument onto the stack from the parser routine; and

pushing the address for the object code routine corresponding to the instruction's command onto the stack from the parser routine.

45. (New) An apparatus according to claim 42, wherein:

the operation of receiving a series of source code instructions expressed in a programming language comprises repeatedly calling a parser routine from a primary routine for interpretively executing source code instructions;

the operation of building at least part of a stack-based execution stream comprises:

(a) pushing the instruction's argument onto the stack from the parser routine; and

(b) pushing the address for the object code routine corresponding to the instruction's command onto the stack from the parser routine; and

the operation of executing the stack-based execution stream comprises:

(a) calling an interpreter routine from the primary routine, wherein the interpreter routine uses the address of the object code routine from the stack to call said object code routine;

(b) retrieving the argument from the stack, wherein said retrieval is performed by the object code routine;

(c) using the argument when executing the object code routine; and

(d) storing a result of the object code routine on the stack.

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46. (New) An apparatus according to claim 42, wherein the operation of executing the stack-based execution stream comprises:

- retrieving the argument from the stack; and
- using the argument when executing the object code routine.

47. (New) An apparatus according to claim 42, wherein the operation of executing the stack-based execution stream comprises:

- retrieving the argument from the stack;
- using the argument when executing the object code routine; and
- storing a result of the object code routine on the stack.

48. (New) An apparatus according to claim 42, wherein the operation of executing the stack-based execution stream comprises:

- recursively executing the object code routine.

49. (New) A method for executing source code instructions expressed in a programming language, the method comprising:

- receiving a series of source code instructions expressed in a programming language, wherein at least one of the source code instructions comprises a command and an argument;
- in response to receiving a source code instruction having a command and an argument, building at least part of a stack-based execution stream; and
- after building at least part of the stack-based execution stream, executing the stack-based execution stream;
- wherein the operation of building at least part of a stack-based execution stream comprises:
  - storing the instruction's argument on a stack;
  - determining an address for an object code routine corresponding to the instruction's command; and
  - storing the address for said object code routine on the stack.

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50. (New) A method according to claim 49, wherein the operation of executing the stack-based execution stream comprises using the address of the object code routine from the stack to call said object code routine.

51. (New) A method according to claim 49, wherein:

the operation of receiving a series of source code instructions expressed in a programming language comprises repeatedly calling a parser routine from a primary routine for interpretively executing source code instructions; and

the operation of building at least part of a stack-based execution stream comprises:

pushing the instruction's argument onto the stack from the parser routine; and

pushing the address for the object code routine corresponding to the instruction's command onto the stack from the parser routine.

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52. (New) A method according to claim 49, wherein:

the operation of receiving a series of source code instructions expressed in a programming language comprises repeatedly calling a parser routine from a primary routine for interpretively executing source code instructions;

the operation of building at least part of a stack-based execution stream comprises:

(a) pushing the instruction's argument onto the stack from the parser routine; and

(b) pushing the address for the object code routine corresponding to the instruction's command onto the stack from the parser routine; and

the operation of executing the stack-based execution stream comprises:

(a) calling an interpreter routine from the primary routine, wherein the interpreter routine uses the address of the object code routine from the stack to call said object code routine;

(b) retrieving the argument from the stack, wherein said retrieval is performed by the object code routine;

(c) using the argument when executing the object code routine; and

(d) storing a result of the object code routine on the stack.

53. (New) A method according to claim 49, wherein the operation of executing the stack-based execution stream comprises:

retrieving the argument from the stack; and

using the argument when executing the object code routine.

54. (New) A method according to claim 49, wherein the operation of executing the stack-based execution stream comprises:

retrieving the argument from the stack;

using the argument when executing the object code routine; and

storing a result of the object code routine on the stack.

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55. (New) A method according to claim 49, wherein the operation of executing the stack-based execution stream comprises:

recursively executing the object code routine.

56. (New) A data processing system, comprising:

a processor;

a machine-readable storage medium responsive to the processor; and

instructions in the machine-readable storage medium, wherein the instructions, when executed by the processor, implement an interpreter to perform operations comprising:

receiving a series of source code instructions expressed in a programming language, wherein at least one of the source code instructions comprises a command and an argument;

in response to receiving a source code instruction having a command and an argument, building at least part of a stack-based execution stream; and

after building at least part of the stack-based execution stream, executing the stack-based execution stream;

wherein the operation of building at least part of a stack-based execution stream comprises:

storing the instruction's argument on a stack;

determining an address for an object code routine corresponding to the instruction's command; and

storing the address for said object code routine on the stack.

57. (New) A data processing system according to claim 56, wherein the operation of executing the stack-based execution stream comprises using the address of the object code routine from the stack to call said object code routine.

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58. (New) A data processing system according to claim 56, wherein:

the operation of receiving a series of source code instructions expressed in a programming language comprises repeatedly calling a parser routine from a primary routine for interpretively executing source code instructions; and

the operation of building at least part of a stack-based execution stream comprises:

pushing the instruction's argument onto the stack from the parser routine; and

pushing the address for the object code routine corresponding to the instruction's command onto the stack from the parser routine.

59. (New) A data processing system according to claim 56, wherein:

the operation of receiving a series of source code instructions expressed in a programming language comprises repeatedly calling a parser routine from a primary routine for interpretively executing source code instructions;

the operation of building at least part of a stack-based execution stream comprises:

(a) pushing the instruction's argument onto the stack from the parser routine; and

(b) pushing the address for the object code routine corresponding to the instruction's command onto the stack from the parser routine; and

the operation of executing the stack-based execution stream comprises:

(a) calling an interpreter routine from the primary routine, wherein the interpreter routine uses the address of the object code routine from the stack to call said object code routine;

(b) retrieving the argument from the stack, wherein said retrieval is performed by the object code routine;

(c) using the argument when executing the object code routine; and

(d) storing a result of the object code routine on the stack.

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60. (New) A data processing system according to claim 56, wherein the machine-readable medium comprises at least one medium from the group consisting of:

random access memory;

non-volatile memory; and

disk based storage.